

**We claim:**

1. A process for preparing immobilized nano-sized metal particles comprising treating wet fungal mycelia with a metal ion solution at temperature in the range of 15 to 40°C for a period in the range of 2 to 120 hours, separating the biomass to obtain the immobilized nano-sized metal particles deposited on to the surface of the fungal cells.
2. A process as claimed in claim 1 wherein the wet fungal mycelia is obtained by growing the *Verticillium* (AAT-TS-4) in a culture medium for a period of 2 to 120 hours at temperature ranging between 15-40°C under aseptic conditions, separating the biomass by centrifugation, washing several times with sterile water, and then incubating the whole reaction mixture at 15 to 40°C and atmospheric pressure.
3. A process as claimed in claim 1 wherein the metal ion solution is obtained by dissolving metal salts of group IB-VIIIB metals in water
4. A process as claimed in claim 3 wherein the metal is selected from the group consisting of Au, Ag, Pd, Pt, Ni, Rh and Ru.
5. A process as claimed in claim 3 wherein the metal salts are selected from the group consisting of halides, nitrates and carbonates.
6. A process as claimed in claim 1 wherein the metal ion solution is obtained by dissolving the acidic form of metals in water.
7. A process as claimed in claim 6 wherein the acidic form of the metal is selected from chloroauric acid and chloroplatinic acid.
8. A process as claimed in claim 1 wherein the concentration of metal ions per gram of wet fungal mycelia is in the range of 10 to 200 mg metal ions per gram of wet fungal mycelia.
9. A process as claimed in claim 8 wherein the concentration of metal ions per gram of wet fungal mycelia is in the range of 10 to 100 mg metal ions per gram of wet fungal mycelia.
10. A process as claimed in claim 8 wherein the concentration of metal ions per gram of wet fungal mycelia is in the range of 25 to 100 mg metal ions per gram of wet fungal mycelia.
11. A process as claimed in claim 1 wherein the ratio of water to wet fungal mycelia is 100:1 (w/w).
12. A process as claimed in claim 1 wherein the fungus *Verticillium* AAT-TS-4 is taken as whole cell as wet solid mass.
13. A process as claimed in claim 1 wherein the reaction of the fungus and metal ion source in solution is carried out in water.
14. A process as claimed in claim 1 wherein the incubation/reaction temperature is in the range of 15-40°C.

15. A process as claimed in claim 14 wherein the incubation/reaction temperature is in the range of 23-33°C.
16. A process as claimed in claim 14 wherein the incubation/reaction temperature is in the range of 25-29°C.